

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-23. Cancelled.

24. (New) A computer network having a plurality of terminals each having a processor, a memory, a manual input and a network connection, wherein

- each of said terminals executes instructions to define a shared virtual environment;
- each of said instructions includes a local object defining a local entity, said object including data defining attributes of said entity, wherein said entity is perceived by a user as being controllable within said shared virtual environment in response to manual control that changes said data;
- said local object is duplicated on other network terminals as a duplica;
- each terminal predicts the data of its duplicas;
- each terminal modifies the predicted data of its duplicas in response to receiving updates from the duplicas' originating terminals; and
- each originating terminal sends updates to specific destination terminals in dependence on an assessment of update necessity, wherein said assessment includes a measurement of relevance between a first entity and a second entity, said first entity being defined by the local object at said originating terminal and said second entity being defined by a local object at the destination terminal.

25. (New) A computer network according to claim 24, wherein said assessment of update necessity includes a comparison between the data of said local object at said originating terminal and the predicted data of the duplica at the destination terminal.

26. (New) A computer network according to claim 24, wherein said assessment of update necessity includes the computation of an error value, and said originating terminal sends an update if said computed error value is larger than an error tolerance that is a function of said measurement of relevance.

27. (New) A computer network according to claim 24, wherein said measurement of relevance is performed by comparing the data of said local object of said originating terminal and the predicted data of the duplica defining said second entity that is stored on said originating terminal.

28. (New) A computer network according to claim 24, wherein said measurement of relevance is a measurement of distance between the positions of said first and second entities in said shared virtual environment as defined by the data of said objects.

29. (New) A computer network according to claim 24, wherein each of said entities is considered to have a visible area of said shared virtual environment based on the attributes of said entity and the layout of said environment, and said measurement of relevance is a function of the position of said first entity within said shared virtual environment with respect to the visible area of said second entity.

30. (New) A computer network according to claim 24, wherein said attributes of an entity include the position within said shared virtual environment of said entity.

31. (New) A computer network according to claim 24, wherein said attributes of an entity include the direction and velocity of travel of said entity within said shared virtual environment.

32. (New) A computer network according to claim 24, wherein said attributes of an entity include the state of a weapon of said entity.

33. (New) A computer network according to claim 24, wherein said assessment of update necessity includes a measurement of the available network bandwidth.

34. (New) A method of updating objects defining a virtual environment shared over a computer network, wherein said network includes a plurality of terminals each having a processor, a memory, a manual input and a network connection, comprising the steps of:

at each of said terminals, executing instructions to define a shared virtual environment, wherein each of said instructions includes a local object defining a local entity, said object including data comprising attributes of said entity, and said entity is perceived by a user as being controllable within said shared virtual environment in response to manual control that changes said data;

 duplicating each local object on other network terminals as a duplicas;

 at each of said terminals, predicting the data of said duplicas;

 at each of said terminals, modifying the predicted data of said duplicas in response to receiving updates from the duplicas' originating terminals; and

at each originating terminal, sending updates to specific destination terminals in dependence on an assessment of update necessity, wherein said assessment includes a measurement of relevance between a first entity and a second entity, said first entity being defined by the local object at said originating terminal and said second entity being defined by a local object at the destination terminal.

35. (New) A method according to claim 34, wherein said assessment of update necessity includes a comparison between the data of said local object at said originating terminal and the predicted data of the duplica at the destination terminal.

36. (New) A method according to claim 34, wherein said assessment of update necessity includes the computation of an error value, and said originating terminal sends an update if said computed error value is larger than an error tolerance that is a function of said measurement of relevance.

37. (New) A method according to claim 34, wherein said measurement of relevance is performed by comparing the data of said local object of said originating terminal and the predicted data of the duplica defining said second entity that is stored on said originating terminal.

38. (New) A method according to claim 34, wherein said measurement of relevance is a measurement of distance between the positions of said first and second entities in said shared virtual environment as defined by the data of said objects.

39. (New) A method according to claim 34, wherein

each of said entities is considered to have a visible area of said shared virtual environment based on the attributes of said entity and the layout of said environment, and

said measurement of relevance is a function of the position of said first entity within said shared virtual environment with respect to the visible area of said second entity.

40. (New) A method according to claim 34, wherein said attributes of an entity include the position within said shared virtual environment of said entity.

41. (New) A method according to claim 34, wherein said attributes of an entity include the direction and velocity of travel of said entity within said shared virtual environment.

42. (New) A method according to claim 34, wherein said attributes of an entity include the state of a weapon of said entity.

43. (New) A method according to claim 34, wherein said assessment of update necessity includes a measurement of the available network bandwidth.

44. (New) A computer-readable medium having computer-readable instructions executable by a computer such that, when executing said instructions, a computer will perform the steps of

executing instructions to define a shared virtual environment, wherein said instructions include a local object defining a local entity and at least one local duplica object each defining a remote entity, said objects including data comprising attributes of said entities, wherein said local entity is perceived by a user as being controllable within said shared virtual environment in response to manual control that changes the data of said local object;

duplicating said local object to other networked terminals as remote duplicas;
predicting the data of said local duplicas;
modifying the predicted data of said local duplicas in response to receiving updates from the duplicas' originating terminals; and
sending updates to specific destination terminals in dependence on an assessment of update necessity, wherein said assessment includes a measurement of relevance between a first entity and a second entity, said first entity being defined by the local object at said originating terminal and said second entity being defined by a local object at the destination terminal.

45. (New) A computer-readable medium according to claim 44, wherein said assessment of update necessity includes a comparison between the data of said local object at said originating terminal and the predicted data of the duplica at the destination terminal.

46. (New) A computer-readable medium according to claim 44, wherein said assessment of update necessity includes the computation of an error value, and said originating terminal sends an update if said computed error value is larger than an error tolerance that is a function of said measurement of relevance.

47. (New) A computer-readable medium according to claim 44, wherein said measurement of relevance is performed by comparing the data of said local object of said originating terminal and the predicted data of the duplica defining said second entity that is stored on said originating terminal.

48. (New) A computer-readable medium according to claim 44, wherein said measurement of relevance is a measurement of distance between the positions of said first and second entities in said shared virtual environment as defined by the data of said objects.

49. (New) A computer-readable medium according to claim 44, wherein each of said entities is considered to have a visible area of said shared virtual environment based on the attributes of said entity and the layout of said environment, and said measurement of relevance is a function of the position of said first entity within said shared virtual environment with respect to the visible area of said second entity.

50. (New) A computer-readable medium according to claim 44, wherein said attributes of an entity include the position within said shared virtual environment of said entity.

51. (New) A computer-readable medium according to claim 44, wherein said attributes of an entity include the direction and velocity of travel of said entity within said shared virtual environment.

52. (New) A computer-readable medium according to claim 44, wherein said attributes of an entity include the state of a weapon of said entity.

53. (New) A computer-readable medium according to claim 44, wherein said assessment of update necessity includes a measurement of the available network bandwidth.